Listing of Claims:

1.   (Currently Amended) An image pickup system for
processing an image signal at each pixel which ~~is composed of
more than one~~ comprises a plurality of color signals, and one or
more of the color signals are dropped out according to ~~the~~ a
location of the pixel, the image pickup system comprising:
first interpolation means for interpolating the color
signals dropped-out from the image signals by a first
interpolation method;
precision verification means for verifying the interpolation
precision based on ~~the basis of~~ the image signals and the color
signals interpolated by the first interpolation means; and
second interpolation means for interpolating the color
signals dropped-out from the image signals by a second
interpolation method that is different from the first
interpolation method in cases where it is judged that the
interpolation precision by the first interpolation method is
insufficient.

2.   (Currently Amended) An image pickup system for
processing an image signal at each pixel which ~~is composed of
more than one~~ comprises a plurality of color signals, and one or

more of the color signals are dropped out according to ~~the~~ a

5   location of the pixel, <u>the image pickup system</u> comprising:

        separation means for separating the image signals into first

image signals and second image signals <u>based</u> on ~~the basis of~~

predetermined characteristics relating to the image signals;

        first interpolation means for interpolating the dropped-out

10   color signals from the first image signals by a first

interpolation method;

        second interpolation means for interpolating the dropped-out

color signals from the second image signals by a second

interpolation method that is different from the first

15   interpolation means;

        precision verification means for verifying the interpolation

precision <u>based</u> on ~~the basis of~~ the first image signals and the

color signals interpolated by the first interpolation means for

the regions of the first image signals, and verifying the

20   interpolation precision <u>based</u> on ~~the basis of~~ the second image

signals and the color signals interpolated by the second

interpolation means for the regions of the second image signals;

and

        adjustment means for causing interpolation processing of the

25   dropped-out color signals to be performed again from the image

signals by the second interpolation means when insufficient

interpolation was performed by the first interpolation means, and

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for causing interpolation processing of the dropped-out color

signals to be performed again from the image signals by the first

30   interpolation means when insufficient interpolation was performed

by the second interpolation means, in cases where it is judged

that the interpolation precision is insufficient.

3.   (Currently Amended) An image pickup system for

processing an image signal at each pixel which ~~is composed of~~

~~more than one~~ comprises a plurality of color signals, and one or

more of the color signals are dropped out according to ~~the~~ a

5   location of the pixel, the image pickup system comprising:

first interpolation means for interpolating the color

signals dropped-out from the image signals by a first

interpolation method;

second interpolation means for interpolating the color

10   signals dropped-out from the image signals by a second

interpolation method that is different from the first

interpolation method;

precision verification means for verifying the interpolation

precision based on ~~the basis of~~ the image signals, the color

15   signals interpolated by the first interpolation means and the

color signals interpolated by the second interpolation means; and

selection means for selecting color signals having a higher

interpolation precision between the color signals interpolated by

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the first interpolation means and the color signals interpolated
by the second interpolation means.

4.   (Currently Amended) The image pickup system according
to claim 1, ~~characterized in that~~ <u>wherein</u> the first interpolation
means or second interpolation means comprises<u>:</u>
    extraction means for extracting regions of a predetermined
size centered on pixels of interest from the image signals,
    edge extraction means for extracting a plurality of edge
intensities relating to predetermined directions from the pixels
of interest within the <u>extracted</u> regions,
    weighting calculation means for calculating weighting
coefficients that are normalized from the <u>extracted</u> edge
intensities,
    interpolation signal calculation means for calculating a
plurality of interpolation signals relating to predetermined
directions from the pixels of interest within the <u>extracted</u>
regions, and
    calculation means for calculating the dropped-out color
signals in the pixels of interest <u>based</u> on ~~the basis of~~ a
plurality of weighting coefficients relating to the predetermined
directions and a plurality of interpolation signals relating to
the predetermined directions.

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5. (Currently Amended) The image pickup system according to claim 1, ~~characterized in that~~ <u>wherein</u> the first interpolation means or second interpolation means comprises<u>:</u>

extraction means for extracting regions of a predetermined size centered on pixels of interest from the image signals, and

calculation means for calculating the dropped-out color signals in the pixels of interest within the <u>extracted</u> regions by linear interpolation or cubic interpolation.

6. (Currently Amended) The image pickup system according to claim 1, ~~characterized in that~~ <u>wherein</u> the first interpolation means or second interpolation means comprises<u>:</u>

extraction means for extracting regions of a predetermined size centered on pixels of interest from the image signals,

correlation calculation means for determining ~~as a linear equation~~ the correlation between the respective color signals within the <u>extracted</u> regions as a linear equation, and

calculation means for calculating the dropped-out color signals <u>based</u> on ~~the basis of~~ the image signals and the correlation.

7. (Currently Amended) The image pickup system according to claim 1, ~~characterized in that~~ <u>wherein</u> the precision verification means comprises<u>:</u>

correlation calculation means for determining correlation
information relating to the correlations between the respective
color signals for each predetermined region based on ~~the basis of~~
the image signals and the color signals interpolated by the first
interpolation means, and

correlation verification means for verifying the
interpolation precision based on ~~the basis of~~ the correlation
information.

8.   (Currently Amended) The image pickup system according
to claim 1, ~~characterized in that~~ wherein the precision
verification means comprises:

hue calculation means for determining hue information for
each pixel based on ~~the basis of~~ the image signals and the color
signals interpolated by the first interpolation means, and

hue verification means for verifying the interpolation
precision based on ~~the basis of~~ the hue information.

9.   (Currently Amended) The image pickup system according
to claim 1, ~~characterized in that~~ wherein the precision
verification means comprises:

edge calculation means for determining edge information for
each predetermined region based on ~~the basis of~~ the image signals

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and the color signals interpolated by the first interpolation means, and

edge verification means for verifying the interpolation precision based on ~~the basis of~~ the edge information.

10. (Currently Amended) The image pickup system according to claim 2, ~~characterized in that~~ wherein the separation means comprises:

edge calculation means for determining edge information for each predetermined region from the image signals, and

image signal separation means for separating the image signals based on ~~the basis of~~ the edge information.

11. (Currently Amended) The image pickup system according to claim 2, ~~characterized in that~~ wherein the separation means comprises:

correlation calculation means for determining correlation information relating to the correlations between the respective color signals for each predetermined region from the image signals, and

image signal separation means for separating the image signals based on ~~the basis of~~ the correlation information.

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12.   (Currently Amended)   The image pickup system according to claim 1, further comprising control means ~~that can control~~ <u>for controlling</u> the precision verification means and the second interpolation means such that the operation of the precision verification means and the operation of the second interpolation means ~~are~~ <u>can be</u> stopped.

13.   (Currently Amended)   The image pickup system according to claim 2, further comprising control means ~~that can control~~ <u>for controlling</u> the precision verification means and the second interpolation means such that the operation of the precision verification means and the operation of the adjustment means ~~are~~ <u>can be</u> stopped.

14.   (Currently Amended)   The image pickup system according to claim 3, further comprising control means ~~that can control~~ <u>for controlling</u> the precision verification means and the second interpolation means such that the operation of the second interpolation means and the operation of the precision verification means ~~are~~ <u>can be</u> stopped, and ~~that can control~~ <u>for controlling the selection means</u> such that when ~~these operations~~ <u>the operation of the second interpolation means and the operation of the precision verification means</u> are stopped, the selection

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10   means is caused to select only the color signals that are

      interpolated by the first interpolation means.

      15.   (Currently Amended)   The image pickup system according

      to claim 12, ~~characterized in that~~ wherein the control means

      comprises:

      ____information acquisition means for acquiring at least one

5   type of information selected from a set comprising image quality

      information relating to the image quality of the image signals,

      image pickup mode information set in the image pickup system, and

      interpolation processing switching information that can be

      manually set, and

10   judgment means for judging whether or not the operations are

      to be stopped based on ~~the basis of~~ at least one type of

      information selected from a set comprising the image quality

      information, image pickup mode information, and interpolation

      processing switching information.

      16.   (Currently Amended)   ~~An~~ A computer-readable recording

      medium having stored thereon an image processing program for

      processing, by means of a computer, an image signal at each pixel

      which ~~is composed of more than one~~ comprises a plurality of color

5   signals, and one or more of the color signals are dropped out

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according to the location of the pixel, the image processing

program causing the computer to function as:

first interpolation means for interpolating the color

signals dropped-out from the image signals by a first

10   interpolation method;

precision verification means for verifying the interpolation

precision <u>based</u> on ~~the basis of~~ the image signals and the color

signals interpolated by the first interpolation means; and

second interpolation means for interpolating the color

15   signals dropped-out from the image signals by a second

interpolation method that is different from the first

interpolation method in cases where it is judged that the

interpolation precision is insufficient.

17.   (Currently Amended)   ~~An~~ <u>A computer-readable recording</u>

<u>medium having stored thereon an</u> image processing program for

processing, by means of a computer, an image signal at each pixel

which ~~is composed of more than one~~ <u>comprises a plurality of</u> color

5   signals<u>,</u> and one or more of the color signals are dropped out

according to the location of the pixel, the image processing

program causing the computer to function as:

separation means for separating the image signals into first

image signals and second image signals <u>based</u> on ~~the basis of~~

10   predetermined characteristics relating to the image signals;

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first interpolation means for interpolating the color signals

dropped-out from the first image signals by a first interpolation

method;

second interpolation means for interpolating the color

signals dropped-out from the second image signals by a second

interpolation method that is different from the first

interpolation means;

precision verification means for verifying the interpolation

precision based on ~~the basis of~~ the first image signals and the

color signals interpolated by the first interpolation means for

the regions of the first image signals, and for verifying the

interpolation precision based on ~~the basis of~~ the second image

signals and the color signals interpolated by the second

interpolation means for the regions of the second image signals;

and

adjustment means for causing interpolation processing of the

dropped-out color signals to be performed again from the image

signals by the second interpolation means when insufficient

interpolation was performed by the first interpolation means, and

for causing interpolation processing of the dropped-out color

signals to be performed again from the image signals by the first

interpolation means when insufficient interpolation was performed

by the second interpolation means, in cases where it is judged

that the interpolation precision is insufficient.

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18.   (Currently Amended)   ~~An~~ A computer-readable recording
medium having stored thereon an image processing program for
processing, by means of a computer, an image signal at each pixel
which ~~is composed of more than one~~ comprises a plurality of color
signals, and one or more of the color signals are dropped out
according to the location of the pixel, the image processing
program causing the computer to function as:

first interpolation means for interpolating the color
signals dropped-out from the image signals by a first
interpolation method;

second interpolating means for interpolating the color
signals dropped-out from the image signals by a second
interpolation method that is different from the first
interpolation method;

precision verification means for verifying the interpolation
precision based on ~~the basis~~ the color signals, the color signals
being interpolated by the first interpolation means and by the
second interpolation means; and

selection means for selecting color signals that have a
higher interpolation precision between the color signals that are
interpolated by the first interpolation means and the color
signals that are interpolated by the second interpolation means.

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19.   (New)   The image pickup system according to claim 2, wherein the first interpolation means or second interpolation means comprises:

extraction means for extracting regions of a predetermined size centered on pixels of interest from the image signals;

edge extraction means for extracting a plurality of edge intensities relating to predetermined directions from the pixels of interest within the extracted regions;

weighting calculation means for calculating weighting coefficients that are normalized from the extracted edge intensities;

interpolation signal calculation means for calculating a plurality of interpolation signals relating to predetermined directions from the pixels of interest within the extracted regions; and

calculation means for calculating the dropped-out color signals in the pixels of interest based on a plurality of weighting coefficients relating to the predetermined directions and a plurality of interpolation signals relating to the predetermined directions.

20.   (New)   The image pickup system according to claim 2, wherein the first interpolation means or second interpolation means comprises:

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extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals; and

calculation means for calculating the dropped-out color

signals in the pixels of interest within the extracted regions by

linear interpolation or cubic interpolation.

21.   (New)   The image pickup system according to claim 2,

wherein the first interpolation means or second interpolation

means comprises:

extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals;

correlation calculation means for determining the

correlation between the respective color signals within the

extracting regions as a linear equation; and

calculation means for calculating the dropped-out color

signals based on the image signals and the correlation.

22.   (New)   The image pickup system according to claim 2,

wherein the precision verification means comprises:

correlation calculation means for determining correlation

information relating to the correlations between the respective

5   color signals for each predetermined region based on the image

signals and the color signals interpolated by the first

interpolation means, and

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correlation verification means for verifying the interpolation precision based on the correlation information.

23. (New) The image pickup system according to claim 2, wherein the precision verification means comprises:

hue calculation means for determining hue information for each pixel based on the image signals and the color signals interpolated by the first interpolation means, and

hue verification means for verifying the interpolation precision based on the hue information.

24. (New) The image pickup system according to claim 2, wherein the precision verification means comprises:

edge calculation means for determining edge information for each predetermined region based on the image signals and the color signals interpolated by the first interpolation means, and

edge verification means for verifying the interpolation precision based on the edge information.

25. (New) The image pickup system according to claim 3, wherein the first interpolation means or second interpolation means comprises:

extraction means for extracting regions of a predetermined size centered on pixels of interest from the image signals;

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edge extraction means for extracting a plurality of edge

intensities relating to predetermined directions from the pixels

of interest within the extracted regions;

weighting calculation means for calculating weighting

10   coefficients that are normalized from the extracted edge

intensities;

interpolation signal calculation means for calculating a

plurality of interpolation signals relating to predetermined

directions from the pixels of interest within the extracted

15   regions; and

calculation means for calculating the dropped-out color

signals in the pixels of interest based on a plurality of

weighting coefficients relating to the predetermined directions

and a plurality of interpolation signals relating to the

20   predetermined directions.

26.   (New)   The image pickup system according to claim 3,

wherein the first interpolation means or second interpolation

means comprises:

extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals; and

calculation means for calculating the dropped-out color

signals in the pixels of interest within the extracted regions by

linear interpolation or cubic interpolation.

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27.   (New)   The image pickup system according to claim 3, wherein the first interpolation means or second interpolation means comprises:

extraction means for extracting regions of a predetermined size centered on pixels of interest from the image signals;

correlation calculation means for determining the correlation between the respective color signals within the extracting regions as a linear equation; and

calculation means for calculating the dropped-out color signals based on the image signals and the correlation.

28.   (New)   The image pickup system according to claim 3, wherein the precision verification means comprises:

correlation calculation means for determining correlation information relating to the correlations between the respective color signals for each predetermined region based on the image signals and the color signals interpolated by the first interpolation means, and

correlation verification means for verifying the interpolation precision based on the correlation information.

29.   (New)   The image pickup system according to claim 3, wherein the precision verification means comprises:

hue calculation means for determining hue information for
each pixel based on the image signals and the color signals
5   interpolated by the first interpolation means, and
hue verification means for verifying the interpolation
precision based on the hue information.

30.   (New)   The image pickup system according to claim 3,
wherein the precision verification means comprises:
edge calculation means for determining edge information for
each predetermined region based on the image signals and the
5   color signals interpolated by the first interpolation means, and
edge verification means for verifying the interpolation
precision based on the edge information.

31.   (New)   The image pickup system according to claim 13,
wherein the control means comprises:
information acquisition means for acquiring at least one
5   type of information selected from a set comprising image quality
information relating to the image quality of the image signals,
image pickup mode information set in the image pickup system, and
interpolation processing switching information that can be
manually set, and
10   judgment means for judging whether or not the operations are
to be stopped based on at least one type of information selected

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from a set comprising the image quality information, image pickup

mode information, and interpolation processing switching

information.

32.   (New)   The image pickup system according to claim 14,

wherein the control means comprises:

information acquisition means for acquiring at least one

type of information selected from a set comprising image quality

information relating to the image quality of the image signals,

image pickup mode information set in the image pickup system, and

interpolation processing switching information that can be

manually set, and

judgment means for judging whether or not the operations are

to be stopped based on at least one type of information selected

from a set comprising the image quality information, image pickup

mode information, and interpolation processing switching

information.

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